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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,834	02/27/2004	Matthijs H. Keuper	LUM-04-01-04 US	8255

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PATENT LAW GROUP LLP  
2635 NORTH FIRST STREET  
SUITE 223  
SAN JOSE, CA 95134

EXAMINER
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HARRINGTON, ALICIA M

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 09/08/2005.

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/789,834

**Applicant(s)**KEUPER ET AL. **Examiner**

Alicia M. Harrington

**Art Unit**

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-29 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                           |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0204</u> . | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

***Information Disclosure Statement***

1. The IDS was partially considered because the page numbers of the references listed on the 1449 do not correspond to the pages of submitted material. The month and year of publication of the material was not provided on the IDS or on the documents. The document number 7 on the IDS is listed as containing pages 713-71; however, the document material submitted had 3 pages of text without any corresponding page numbers on the documents.

***Drawings***

2. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

**Content of Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and

descriptive, preferably from two to seven words may not contain more than 500 characters.

- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.  
  
Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.
- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
  - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward

the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

- (I) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

3. The disclosure is objected to because of the following informalities: In sections 16-22, applicant describes the drawbacks of the systems organized with LED structures displayed in the figures. Applicant goes on to describe, the inventive nature of applicant's invention and improvement over figures 1 and 2 begins in figure 3. Therefore, sections 16-22 should be included in the background of invention and not in the summary of invention.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "approximate direction" in claim 1 is a relative term which renders the claim indefinite. The term "approximate direction" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The claim recites the LED's are aligned in the "same approximate direction"

and the Examiner is unclear if the applicant means the same direction or approximate (not exactly the same) direction. Thus, the claim is indefinite.

Claims 2-13 inherit their indefiniteness from claim 1 from which they depend.

Claims 1-13 will be examined as best understood by the Examiner.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1,2,4,6-9,14,15,17,18,19,21,22 are rejected under 35 U.S.C. 102(e) as being anticipated by Song et al (US 6,552,754).

Regarding claims 1,14 and 18, Song discloses an apparatus comprising:

a first light emitting diode, a second light emitting diode and a third light emitting diode, each of which is aligned in the same approximate direction (see col. 2, lines 17-24 and 39-50; col. 6, lines 40-60; 21,22,23-see figure 8 or 9),

a first reflecting surface (24 or 41) positioned to reflect light emitted from the first light emitting diode;

a second reflecting surface (25 or 42) positioned to reflect light emitted from the second light emitting diode;

a first filter (a cross layer of the prism between the two reflecting surfaces) disposed between the first reflecting surface and the second reflecting surface and configured to reflect the light reflected from the first reflecting surface and to transmit light reflected from the second reflecting surface and the light emitted by the third light emitting diode; and

a second filter (a cross layer of the prism between the reflecting surface) disposed between the first reflecting surface and the second reflecting surface and configured to reflect the light reflected from the second reflecting surface and to transmit light reflected from the first reflecting surface and the light emitted by the third light emitting diode (see col. 6- col. 7, lines 1-27; #30);

wherein the first filter and second filter combine the light reflected from the first reflecting surface, the light reflected from the second reflecting surface and the light emitted from the third light emitting diode (see figures 8 or 9).

Regarding claims 2 and 17, Song illustrates the light coming from the diode array (red, green and blue) is collimated (parallel beams) via the output from the valve (collimating system).



Regarding claims 4 and 19, Song discloses the apparatus of Claim 1, wherein the first filter and second filter are dichroic filters positioned orthogonally relative to one another (see figures 8 or 9-dichroic prism).

Regarding claims 6 and 21, Song discloses the apparatus of Claim 1, wherein the first filter and second filter are formed from an X-cube prism (see figures 8 or 9).

Regarding claims 7 and 15, Song discloses the apparatus of Claim 1, the apparatus further comprising a lens configured to receive the combined light from the first filter and the second filter (#40).

Regarding claims 8 and 22, Song discloses the apparatus of Claim 1, wherein the first light emitting diode, second light emitting diode and third light emitting diode each emit light of a different color, the colors being red, green and blue (see col. 5, lines 45-50).

Regarding claim 9, Song discloses the apparatus of Claim 1, wherein the first light emitting diode, second light emitting diode and third light emitting diode lie within the same plane (see figures 8 or 9).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US 6,552,754).

Regarding claims 5 and 20, Song discloses the apparatus of claim 4, wherein a x prism with dichroic filters are used to selective transmit and reflect light and the structure of the x-cube is equivalent to a first filter has a front surface and a back surface, and wherein the second filter comprises two halves, a first half having an end that abuts the front surface of the first filter and the second half having an end that abuts the back surface of the first filter. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this filter structure in the dichroic x prism, since it is known in the art and provides adequate reflection and transmission properties for light sources directed/aligned to emit light towards the prism.

10. Claims 3,10,16, 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US 6,552,754) in view of Morgan (US 2005/0128441).

Regarding claims 3,10, 16, Song discloses a laser/LED video projector, which inherently has a frame for the parts of the projector. However, Song fails to specifically disclose the LED array are mounted on a heat sink in the frame.

Morgan discloses an LED projection system where an embodiment of the invention incorporates the LED mounted on a heat sink (see sections 58 and 101). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount an LED array to a heat sink, since it is known in the projection art and it helps to make the projection system more compact.

Regarding claims 23 and 24, Song discloses a laser video projection system comprising:

Frame (inherent)

Mounting a collimator system (see figure 9; Song illustrates the light coming from the diode array (red, green and blue) is collimated (parallel beams) via the output from the valve.)

Mounting a first mirror and second mirror (41a, 42a);

Mounting a filter system (combiner 30)

Mounting at least three LED's- red, green, blue- to the frame wherein each is associated with a collimator in the collimating system. However, Song fails to specifically disclose the LED array are mounted on a heat sink in the frame.

Morgan discloses an LED projection system where an embodiment of the invention incorporates the LED mounted on a heat sink (see sections 58 and 101). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount an LED array to a heat sink, since it is known in the projection art and it helps to make the projection system more compact.

Regarding claims 25 and 26, Song discloses an x-cube with dichroic filters that are oriented orthogonally. The dichroic filters are used to selective transmit and reflect light and the structure of the x-cube is equivalent to mounting second dichroic filter to the frame, the second dichroic filter having a first portion mounted on a first side of the first dichroic filter and a second portion mounted on a second side of the first dichroic filter, Thus, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to include this filter structure in the dichroic x prism, since it is known in the art and provides adequate reflection and transmission properties for light sources directed/aligned to emit light towards the prism.

Regarding claim 27, Song discloses element 40.

Regarding claim 28, Song fails to specifically disclose an embodiment using lens integrally formed with the collimator system. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a lenses, since they would operate as the functional optical equivalent and are easily interchangeable if they malfunction.

Regarding claim 29, Song discloses red, green and blue lasers (21-23).

***Allowable Subject Matter***

11. Claims 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 11, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed limitations which includes an apparatus further comprising, a fourth light emitting diode, third reflecting surface, fourth reflecting surface positioned to reflect light from the fifth light emitting diode, wherein the first filter is

further configured to reflect light from the third reflecting surface and to transmit light reflected from the fourth reflecting surface, and the second filter is further configured to reflect light from the fourth reflective surface and to transmit light reflected from the third reflective surface as claimed.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Doany et al (US 6,019,474), and

Kubota et al (US 2005/0018285).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'AMH', with a stylized, cursive script.

AMH

Alicia M Harrington  
Examiner  
Art Unit 2873